

CLAIM

1. (Currently amended) A software system for constrained graphs, the system implemented in accordance with an object-oriented design framework, ~~wherein said graph is constructed using a plurality of graphical elements,~~ the system comprising:

software code for implementing a graph, said graph being constructed using a plurality of subgraphs having each a plurality of graphical elements;

a plurality of subgraph classes, wherein an instance of each of said subgraph classes comprises a predefined grouping of ~~one or more of~~ said graphical elements representative of a subgraph ~~type~~; and

each of said plurality of subgraph classes adapted being enabled to:

reposition the graphical elements of a subgraph within said graph, said subgraph represented by an instance of one of said plurality of subgraph classes; and

initiate a repositioning of the ~~graphical elements of~~ subgraphs affected by said repositioning of the graphical elements of the subgraph represented by said instance of said one of said plurality of subgraph classes.

BRIEF EXPLANATION OF INVENTION

As mentioned in the SPECIFICATION, constrained graphs are graphs constructed using graphical elements that have been predefined in how they are composed and sequenced, which may be used to build complex graphical flows and which may be displayed in software applications. Graphical flows can be used in the modeling of various processes, for example.

In a layout of the graphical elements of a constrained graph, there are certain rules, defined at development time, which the layout must conform to. Accordingly, the term "constrained" is used in reference to the graphical elements available in building the graph and to the rules on how these graphical elements may be combined.

The present invention provides means to dynamically manage an expanding and contracting graph in response to user interactions such as insertions and deletions of graphical elements in the graph. To make a large, complex, constrained graph more manageable, in accordance with the present invention, the constrained graph is broken down into smaller parts, referred to as subgraphs. Each subgraph is also composed of one or more graphical elements (e.g. nodes, terminals, connections, bundles of connections, other subgraphs). However, a subgraph is not merely an arbitrary collection of graphical elements. Each type of subgraph is characterized by a specific grouping or combination of graphical elements, which is defined by the software developer.

When a user deletes a graphical element from a subgraph or adds a graphical element to a subgraph, the graphical elements of the subgraphs are repositioned. If other subgraphs are affected by the repositioning of the